

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A substrate holding apparatus for holding a substrate to be polished and pressing said the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

an elastic pad for being brought into contact with said the substrate;

a support member for supporting said elastic pad;

a contact member mounted on a lower surface of said support member and disposed in a space formed by said elastic pad and said support member, said contact member having an elastic membrane for being brought into contact with said elastic pad;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member; and

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate, said retainer ring defining a central opening and having a through hole extending through said retainer ring.

2. (Currently Amended) A substrate holding apparatus according to claim 1, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

an elastic pad for being brought into contact with the substrate;

a support member for supporting said elastic pad;

a contact member mounted on a lower surface of said support member and disposed in a space formed by said elastic pad and said support member, said contact member having an elastic membrane for being brought into contact with said elastic pad;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member; and
a fluid source for independently supplying a fluid, controlled in terms of temperature, into said
first pressure chamber and said second pressure chamber,

~~wherein said fluid source supplies a fluid controlled in temperature into said first pressure chamber and said second pressure chamber, respectively.~~

3. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 1, wherein said contact member ~~comprises~~ includes a holding member for detachably holding said elastic membrane.

4. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 3, wherein said holding member ~~of said contact member~~ is detachably mounted on said support member.

5. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 1, wherein said contact member includes a central contact member disposed at a position corresponding to a central portion of ~~said~~ the substrate when held by said top ring body, and an outer contact member disposed outside of said central contact member.

6. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 5, wherein said outer contact member is ~~mounted~~ disposed at a position corresponding to an outer peripheral portion of ~~said~~ the substrate when held by said top ring body.

Claim 7 (Cancelled)

8. (Currently Amended) ~~A~~ substrate holding apparatus according to claim 7, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

an elastic pad for being brought into contact with the substrate;

a support member for supporting said elastic pad;

a contact member mounted on a lower surface of said support member and disposed in a space formed by said elastic pad and said support member, said contact member having an elastic membrane for being brought into contact with said elastic pad;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member;

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate,

wherein said top ring body comprises includes a cleaning liquid passage defined therein for supplying a cleaning liquid into a gap defined between an outer circumferential surface of said elastic pad and said retainer ring.

9. (Currently Amended) A substrate holding apparatus according to claim 7, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

an elastic pad for being brought into contact with said substrate;

a support member for supporting said elastic pad;

a contact member mounted on a lower surface of said support member and disposed in a space formed by said elastic pad and said support member, said contact member having an elastic membrane for being brought into contact with said elastic pad;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member;

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate,

wherein said retainer ring is fixed to or integrally formed with said top ring body without interposing an elastic member between said retainer ring and said top ring body.

10. (Currently Amended) ~~A substrate holding apparatus according to claim 1, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:~~

a top ring body for holding a substrate;

an elastic pad for being brought into contact with the substrate;

a support member for supporting said elastic pad;

a contact member mounted on a lower surface of said support member and disposed in a space formed by said elastic pad and said support member, said contact member having an elastic membrane for being brought into contact with said elastic pad;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member; and

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber,

wherein said elastic membrane of said contact member has a partially different thickness differing thicknesses.

11. (Currently Amended) ~~A substrate holding apparatus according to claim 1, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:~~

a top ring body for holding a substrate;

an elastic pad for being brought into contact with the substrate;

a support member for supporting said elastic pad;

a contact member mounted on a lower surface of said support member and disposed in a space formed by said elastic pad and said support member, said contact member having an elastic membrane for being brought into contact with said elastic pad;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member; and
a fluid source for independently supplying a fluid into, or creating a vacuum in, said first
pressure chamber and said second pressure chamber,

wherein said elastic membrane of said contact member partially includes an inelastic member.

12. (Currently Amended) A The substrate holding apparatus according to claim 1, wherein
said support member is made of an insulating material.

Claims 13-27 (Cancelled)

28. (Currently Amended) A substrate holding apparatus for holding a substrate to be polished
and pressing said the substrate against a polishing surface, said substrate holding apparatus
comprising:

a top ring body for holding a substrate;

a support member having a contact member mounted on a lower surface thereof, said contact
member being disposed in a space formed by said the substrate, when held by said top ring body, and
said support member, and said contact member having an elastic membrane for being brought into
contact with said the substrate;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member; and

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first
pressure chamber and said second pressure chamber; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral
portion of the substrate, said retainer ring defining a central opening and having a through hole
extending through said retainer ring.

29. (Currently Amended) A substrate holding apparatus according to claim 28, A substrate
holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing
surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;
a support member having a contact member mounted on a lower surface thereof, said contact member being disposed in a space formed by the substrate, when held by said top ring body, and said support member, and said contact member having an elastic membrane for being brought into contact with the substrate;
a first pressure chamber defined in said contact member;
a second pressure chamber defined outside of said contact member; and
a fluid source for independently supplying a fluid, controlled in terms of temperature, into said first pressure chamber and said second pressure chamber,
wherein said fluid source supplies a fluid controlled in temperature into said first pressure chamber and said second pressure chamber, respectively.

30. (Currently Amended) A The substrate holding apparatus according to claim 28, wherein further comprising:

a communicating portion, for allowing said the fluid supplied to into said first pressure chamber to contact a contact surface of said the substrate, is formed in the a lower surface of said elastic membrane of said contact member.

31. (Currently Amended) A The substrate holding apparatus according to claim 28, wherein said contact member comprises includes a holding member for detachably holding said elastic membrane.

32. (Currently Amended) A The substrate holding apparatus according to claim 31, wherein said holding member of said contact member is detachably mounted on said support member.

33. (Currently Amended) A The substrate holding apparatus according to claim 28, wherein further comprising:

a protrusion, radially protruding extending from a circumferential edge of said elastic membrane, of said contact member is provided on the a lower surface of said elastic membrane.

34. (Currently Amended) A The substrate holding apparatus according to claim 28, wherein said contact member includes a central contact member disposed at a position corresponding to a central portion of said the substrate when held by said top ring body, and an outer contact member disposed outside of said central contact member.

35. (Currently Amended) A The substrate holding apparatus according to claim 34, wherein said outer contact member is mounted disposed at a position corresponding to an outer peripheral portion of said the substrate when held by said top ring body.

Claim 36 (Cancelled)

37. (Currently Amended) A substrate holding apparatus according to claim 36; A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

a support member having a contact member mounted on a lower surface thereof, said contact member being disposed in a space formed by the substrate, when held by said top ring body, and said support member, and said contact member having an elastic membrane for being brought into contact with the substrate;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member;

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate,

wherein said top ring body comprises includes a cleaning liquid passage defined therein for supplying a cleaning liquid into a gap defined between an outer circumferential surface of said the substrate, when held by said top ring body, and said retainer ring.

38. (Currently Amended) A substrate holding apparatus according to claim 36, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

a support member having a contact member mounted on a lower surface thereof, said contact member being disposed in a space formed by the substrate, when held by said top ring body, and said support member, and said contact member having an elastic membrane for being brought into contact with the substrate;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member;

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate,

wherein said retainer ring is fixed to or integrally formed with said top ring body without interposing an elastic member between said retainer ring and said top ring body.

39. (Currently Amended) A substrate holding apparatus according to claim 28, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

a support member having a contact member mounted on a lower surface thereof, said contact member being disposed in a space formed by the substrate, when held by said top ring body, and said support member, and said contact member having an elastic membrane for being brought into contact with the substrate;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member; and

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber,

wherein said elastic membrane of said contact member has a partially different thickness differing thicknesses.

40. (Currently Amended) A substrate holding apparatus according to claim 28, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

a support member having a contact member mounted on a lower surface thereof, said contact member being disposed in a space formed by the substrate, when held by said top ring body, and said support member, and said contact member having an elastic membrane for being brought into contact with the substrate;

a first pressure chamber defined in said contact member;

a second pressure chamber defined outside of said contact member; and

a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber,

wherein said elastic membrane of said contact member partially includes an inelastic member.

41. (Currently Amended) A substrate holding apparatus according to claim 28, wherein said support member is made of an insulating material.

42. (Currently Amended) A substrate holding apparatus for holding a substrate to be polished and pressing said the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

an elastic pad for being brought into contact with said the substrate;

a support member for supporting said elastic pad; and

a plurality of contact members mounted on a lower surface of said support member, said plurality of contact members each having an elastic membrane for being brought into contact with said elastic pad and being independently pressed against said elastic pad; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of said substrate, said retainer ring defining a central opening and having a through hole extending through said retainer ring.

43. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 42, wherein said plurality of contact members are spaced from one another at a predetermined intervals interval.

44. (Currently Amended) ~~A~~ substrate holding apparatus according to claim 42; ~~A~~ substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;
an elastic pad for being brought into contact with the substrate;
a support member for supporting said elastic pad;
contact members mounted on a lower surface of said support member, said contact members each having an elastic membrane for being brought into contact with said elastic pad and independently pressed against said elastic pad;
a first pressure chamber;
a second pressure chamber; and
wherein said a fluid source supplies for independently supplying a fluid, controlled in terms of temperature, into said first pressure chamber and said second pressure chamber, respectively.

45. (Currently Amended) ~~A~~ substrate holding apparatus according to claim 42; ~~A~~ substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;
a support member;
contact members mounted on a lower surface of said support member, said contact members each having an elastic membrane for being brought into contact with the substrate and independently pressed against the substrate;

a first pressure chamber;
a second pressure chamber; and
a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and

wherein a communicating portion, for allowing said the fluid supplied to into said first pressure chamber to contact a contact surface of said the substrate, is formed in the a lower surface of said elastic membrane of at least one of said contact member members.

46. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 42, wherein at least one of said contact member members includes comprises a holding member for detachably holding said elastic membrane of said at least one of said contact members.

47. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 46, wherein said holding member of said contact member is detachably mounted on said support member.

48. (Currently Amended) ~~A~~ substrate holding apparatus according to claim 42, A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;
an elastic pad for being brought into contact with the substrate;
a support member for supporting said elastic pad;

contact members mounted on a lower surface of said support member, said contact members each having an elastic membrane for being brought into contact with said elastic pad and independently pressed against said elastic pad; and

wherein a protrusion, radially protruding extending from a circumferential edge of said elastic membrane of at least one of said contact member is provided members, on the a lower surface of said elastic membrane.

49. (Currently Amended) A The substrate holding apparatus according to claim 42, wherein said contact member members include includes a central contact member disposed at a position corresponding to a central portion of said the substrate when held by said top ring body, and an outer contact member disposed outside of said central contact member.

50. (Currently Amended) A The substrate holding apparatus according to claim 49, wherein said outer contact member is mounted at a position corresponding to an outer peripheral portion of said the substrate when held by said top ring body.

Claim 51 (Cancelled)

52. (Currently Amended) A substrate holding apparatus according to claim 51; A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;
an elastic pad for being brought into contact with the substrate;
a support member for supporting said elastic pad;
contact members mounted on a lower surface of said support member, said contact members each having an elastic membrane for being brought into contact with said elastic pad and independently pressed against said elastic pad; and

a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate,

wherein one of said contact members is a central contact member disposed at a position corresponding to a central portion of the substrate when held by said top ring body,

wherein another of said contact members is an outer contact member disposed at a position corresponding to an outer peripheral portion of the substrate when held by said top ring body, and disposed outside of said central contact member, and

wherein said top ring body comprises includes a cleaning liquid passage defined therein for supplying a cleaning liquid into a gap defined between an outer circumferential surface of said elastic pad and said retainer ring.

53. (Currently Amended) A substrate holding apparatus according to claim 51; A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

an elastic pad for being brought into contact with the substrate;

a support member for supporting said elastic pad;

contact members mounted on a lower surface of said support member, said contact members each having an elastic membrane for being brought into contact with said elastic pad and independently pressed against said elastic pad; and

a retainer ring, fixed to or integrally formed with, said top ring body for holding a peripheral portion of the substrate,

wherein one of said contact members is a central contact member disposed at a position corresponding to a central portion of the substrate when held by said top ring body,

wherein another of said contact members is an outer contact member disposed at a position corresponding to an outer peripheral portion of the substrate when held by said top ring body, and disposed outside of said central contact member, and

wherein said retainer ring is fixed to or integrally formed with said top ring body without interposing an elastic member between said retainer ring and said top ring body.

54. (Currently Amended) A substrate holding apparatus according to claim 42; A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:

a top ring body for holding a substrate;

an elastic pad for being brought into contact with the substrate;

a support member for supporting said elastic pad; and

contact members mounted on a lower surface of said support member, said contact members each having an elastic membrane for being brought into contact with said elastic pad and independently pressed against said elastic pad,

wherein said elastic membrane of at least one of said contact member members has a partially different thickness differing thicknesses.

55. (Currently Amended) ~~A substrate holding apparatus according to claim 42; A substrate holding apparatus for holding a substrate to be polished and pressing the substrate against a polishing surface, said substrate holding apparatus comprising:~~

a top ring body for holding a substrate;

an elastic pad for being brought into contact with the substrate;

a support member for supporting said elastic pad; and

contact members mounted on a lower surface of said support member, said contact members each having an elastic membrane for being brought into contact with said elastic pad and independently pressed against said elastic pad,

wherein said elastic membrane of at least one of said contact member members partially includes an inelastic member.

56. (Currently Amended) ~~A~~ The substrate holding apparatus according to claim 42, wherein said support member is made of an insulating material.

57. (Currently Amended) A polishing apparatus for polishing a substrate, comprising:

a polishing table having a polishing surface; and

a substrate holding apparatus for holding ~~the~~ a substrate to be polished and pressing the substrate against said polishing surface, said substrate holding apparatus comprising including:

(i) a top ring body for holding ~~a~~ the substrate;

(ii) an elastic pad for being brought into contact with said the substrate;

(iii) a support member for supporting said elastic pad;

- (iv) a contact member mounted on a lower surface of said support member and disposed in a space formed by said elastic pad and said support member, said contact member having an elastic membrane for being brought into contact with said elastic pad;
- (v) a first pressure chamber defined in said contact member;
- (vi) a second pressure chamber defined outside of said contact member; and
- (vii) a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and
- (viii) a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate, said retainer ring defining a central opening and having a through hole extending through said retainer ring.

Claim 58 (Cancelled)

59. (Currently Amended) A polishing apparatus for polishing a substrate, comprising:
- a polishing table having a polishing surface; and
 - a substrate holding apparatus for holding the a substrate to be polished and pressing the substrate against said polishing surface, said substrate holding apparatus comprising including:
 - (i) a top ring body for holding a the substrate;
 - (ii) a support member having a contact member mounted on a lower surface thereof, said contact member being disposed in a space formed by said the substrate, when held by said top ring body, and said support member, and said contact member having an elastic membrane for being brought into contact with said the substrate;
 - (iii) a first pressure chamber defined in said contact member;
 - (iv) a second pressure chamber defined outside of said contact member; and
 - (v) a fluid source for independently supplying a fluid into, or creating a vacuum in, said first pressure chamber and said second pressure chamber; and
 - (vi) a retainer ring, fixed to or integrally formed with said top ring body, for holding a peripheral portion of the substrate, said retainer ring defining a central opening and having a through hole extending through said retainer ring.

Claims 60-62 (Cancelled)